

We claim:

1. A method for extracting oleaginous substances from spores of *Ganoderma lucidum* comprising:

soaking Ganoderma spores in a nutritional solution to produce germination-induced Ganoderma spores;

placing said germination-induced Ganoderma spores in a ventilated culture box until cell walls of said Ganoderma spores are softened to produce germination-activated Ganoderma spores;

breaking sporoderm of said germination-activated Ganoderma spores by a mechanical means to obtain sporoderm-broken Ganoderma spores, and

extracting oleaginous substances from said sporoderm-broken Ganoderma spores using a supercritical fluid-carbon dioxide (SCF-CO₂) extraction method.

2. The method according to claim 1, wherein said nutritional solution is at least one which is selected from the group consisting of an immersed solution of Ganoderma fruiting body, a biotin solution, water, and an immersed solution of Ganoderma mycelium.

3. The method according to claim 1, wherein said Ganoderma spores are soaked in said nutritional solution between 10 minutes and 10 hours.

4. The method according to claim 1, wherein said Ganoderma spores are soaked in said nutritional solution between 16° and 43° C.

5. The method according to claim 1, wherein said ventilated culture box is at relative humidity between 60% and 98%.

6. The method according to claim 1, wherein said ventilated culture box is at temperature between 16° C. and 48° C.

7. The method according to claim 1, wherein said germination-induced Ganoderma spores are placed in said ventilated culture box for between 10 minutes and 24 hours.

8. The method according to claim 1, wherein said mechanical means for breaking said sporoderm-broken Ganoderma spores is at least one selected from the group consisting of micronization, airstream, scissor-cutting, grinding, and pressure microstream.

9. The method according to claim 8, further comprising a step of digesting said germination-activated Ganoderma spores with at least an enzyme before applying said mechanical means.

10. The method according to claim 9, wherein said enzyme is at least one selected from the group consisting of chitinase and cellulase.

11. The method according to claim 1, wherein said SCF-CO₂ extraction method comprises:

placing said sporoderm-broken Ganoderma spores in a pressure vessel;

contacting SCF-CO₂ with said Ganoderma spores in said pressure vessel; and

depressurizing said pressure vessel to collect said oleaginous substances from said sporoderm-broken Ganoderma spores.

12. The method according to claim 11, wherein said pressure vessel is maintained at a pressure between 5 M Psia (Pa) to 60 M Pa.

13. The method according to claim 11, wherein said pressure vessel is maintained at a temperature of 32° C. to 85° C.

14. The method according to claim 11, wherein said pressure vessel is maintained at a flow volume rate of 5 kg/h to 80 kg/h.

15. The method according to claim 11, wherein said extraction time is between 30 minutes and 6 hours.

16. The method according to claim 11, wherein said sporoderm-broken Ganoderma spores are mixed with a carrier before placed in said pressure vessel.

17. The method according to claim 16, wherein said carrier is 85% to 100% ethanol (vol/vol) or water.

18. The method according to claim 16, wherein said carrier and said Ganoderma spores are at a weight ratio of 2% to 200%.

19. The method according to claim 16, further comprising a step of:

separating said oleaginous substances from said carrier by centrifugation.

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